

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Differences in the pregnancy gestation period and mean birthweights in infants born to Indian, Pakistani, Bangladeshi and white British mothers in Luton: A retrospective analysis of routinely collected data.
<b>AUTHORS</b>	Garcia, Rebecca; Ali, Nasreen; Guppy, Andy; Griffiths, Malcolm; Randhawa, Gurch

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Diane Farrar UK
<b>REVIEW RETURNED</b>	24-Feb-2016

<b>GENERAL COMMENTS</b>	<p>The subject is of interest to the clinical and academic community, however I think the analysis presented does not provide the best assessment of these data</p> <p>Abstract: minor issues-Participants I think (LU1-LU4) is unnecessary .... Unless it is used later in the abstract and it is not Results- mean birth weights need to be included as this was an aim of the study, at the moment the only results we have relate to Indian mothers having the highest very low birth weight rate The results are presented in a confusing way I think it would be better to present results for all groups on mean birthweight (adjusted for gestational age?) and then results on gestational age at delivery, which is the stated aim, rather than mix up and present subgroup results</p> <p>main paper: minor issues- Intro does not reference the papers that have reported ethnic differences between white British and ethnic groups eg Pakistani or mainly Pakistani for example West J, Lawlor D A, Fairley L, Bhopal R, Cameron N, Mckinney P A, Sattar N, Wright J (2013). UK-born Pakistani-origin infants are relatively more adipose than white British infants: findings from 8704 mother-offspring pairs in the Born-in-Bradford prospective birth cohort. J Epidemiol Community Health 67(7): 544-551. or Bansal N, Ayoola O O, Gemmell I, Vyas A, Koudsi A, Oldroyd J, Clayton P E, Cruickshank J K (2008). Effects of early growth on blood pressure of infants of British European and South Asian origin at one year of age: the Manchester children's growth and vascular health study. J Hypertens 26(3): 412-418.</p> <p>Why is maternal age not known or included across the population if the under 16s are excluded? Surely this is routinely collected item</p>
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	<p>the authors do not describe the method of analysis adequately used for table 3 and need to</p> <p>the amount missing case data by ethnic group should be reported</p> <p>it is not appropriate to talk about straight percentages as in the percentage of very low birthweight infants as this is influenced by the number of women included in each ethnic group, it is more informative to discuss proportions with outcomes by group</p> <p>major issues-I understand that if routine NHS data is used for audit purposes to improve service provision NRES approval is not required, if these analyses were undertaken for this reason this needs to be explicit. However if data are used for research purposes only, NRES proportional review is required. Also as these participants are NHS patients it is immaterial that the researchers have university approval, because for use of NHS obtained data for research NRES approval is required</p> <p>the results on birthweight in table 1 are not helpful when non-viable and preterm births are included without adjustment, they will skew the mean results and the authors point out that there are difference between the subgroups in terms of rate of viable, preterm and term births</p> <p>the sentence: gestation and maternal height were controlled as know confounders to birthweight doesn't make sense, unadjusted and adjusted regression analysis using all relevant and available confounders including smoking BMI, hypertension diabetes etc (which were collected) should be undertaken for the examination of these outcomes in a large dataset such as this, and I think should be presented as table 2 following table (1) which should include the cohort characteristics and all the main confounding variables for each group. I'm not sure what the analysis in table 3 adds this needs to be explained</p>
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<b>REVIEWER</b>	Tessa Pollard Durham University, UK
<b>REVIEW RETURNED</b>	08-Mar-2016

<b>GENERAL COMMENTS</b>	<p>The authors compare birth weight and length of gestation between infants born in Luton to mothers of white British, Indian, Pakistani and Bangladeshi origin. They use a valuable dataset that includes a large number of births to mothers from the three largest South Asian groups in the UK. The absence of information on maternal age is unfortunate.</p> <p>Greater clarity and precision in presentation and analysis would be useful, and my suggestions are listed below:</p> <p>Abstract</p> <p>1. The results section of the abstract could be improved by the inclusion of statistics to support all the statements made. The findings on birthweight should feature more prominently.</p> <p>Introduction</p>
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	<p>2. P4 lines3-4 The data from Margetts et al (2002) given here as being from the different ethnic groups are actually limited to data for children born to mothers themselves born in India, Pakistan and Bangladesh. Margetts et al also had data from mothers of Indian, Pakistani and Bangladeshi ethnicity who were born in the UK. The meaning of 'between generations' in this sentence is unclear.</p> <p>3. P4 line 12 – citation needed for Leon and Moser</p> <p>4. P 4 second paragraph. The use of 'correspondingly', 'moreover' and 'similarly' in this paragraph is confusing. It is not clear what is referred to here.</p> <p>Methods</p> <p>5. The methods section should state whether all the data included in the paper come from births in hospital. If this is the case, the discussion would need to note this as a limitation of the study.</p> <p>6. The statistical approach taken in the paper is unusual and sometimes difficult to follow (further comments below).</p> <p>7. P 6 line 3. It would be useful for the authors to explain how and why gestation and maternal height were controlled in their analyses, and for them to explain why they were controlled and other variables known to influence birth weight, as listed by the authors on p3, were not. (Variables known to affect birth weight and not listed by the authors include parity and infant's gender). The authors should consider what controlling for these variables means for their analysis. For example, maternal height varies considerably between the ethnic groups and may help account for differences in birth weight. If maternal height is controlled for in all analyses then meaningful differences between the groups may be obscured, as may the potential role of maternal height in explaining group differences. See Kelly et al (2009) for more on this.</p> <p>Results</p> <p>8. A table describing the characteristics of the different groups should be included.</p> <p>9. Table 1. It would be useful to report 95% confidence intervals here.</p> <p>10. Table 2. It is unclear to me how the odds ratios presented here were calculated. Please state the reference group.</p> <p>11. Table 3. It was unclear to me what question these analyses were designed to answer. The cell counts are very low or zero in many cases, which also calls into question the utility of this approach.</p> <p>12. The results section is sometimes confusing to read. One issue is that non-essential information is sometimes included, sometimes repeated from tables. For example, we don't need to be told in the text that Pakistani mothers had the earliest and latest deliveries as that information isn't central to the results and is provided in a table (p6).</p> <p>13. <math>p &lt; 0.001</math> is a typo</p>
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	<p>Discussion</p> <p>14. As in the results section, some streamlining is required here (e.g. no need to report the fact that white British mothers delivered the highest number of infants that were classified as very low birth weight (p12, lines 16-18)).</p> <p>15. P14, line 19. It is hard to see a justification in the data and analyses presented for the suggestion that South Asian infants may not have the same natural gestation period as seen in White British infants.</p> <p>References</p> <p>Kelly et al (2009) Why does birthweight vary among ethnic groups in the UK? Findings from the Millennium Cohort Study. J Public Health 31: 131-137</p> <p>Margetts et al (2002) Persistence of lower birth weight in second generation South Asian babies born in the United Kingdom. JECH 56: 684-687</p>
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## VERSION 1 – AUTHOR RESPONSE

Reviewer Comment Author Revision Author revised text

Diane Farrar

University of Bradford

1. Abstract:

minor issues-Participants I think (LU1-LU4) is unnecessary .... Unless it is used later in the abstract and it is not

LU1-LU4 deleted.

2. Results-

mean birth weights need to be included as this was an aim of the study, at the moment the only results we have relate to Indian mothers having the highest very low birth weight rate

Abstract results section revised. The adjusted mean birthweight for white British mothers was found to be 3326.73g, Indian mothers 3042.1g, Pakistani mothers 3138.27g, and Bangladeshi mothers 3074.09g.

3. The results are presented in a confusing way I think it would be better to present results for all groups on mean birthweight (adjusted for gestational age?)

and then results on gestational age at delivery, which is the stated aim, rather than mix up and present subgroup results Results section revised completely.

Birthweight mean adjusted for viability (>24/40)

Mean gestation age at delivery (table 3)

Please see revised manuscript.

minor issues-

Intro does not reference the papers that have reported ethnic differences between white British and ethnic groups eg Pakistani or mainly Pakistani for example

4. West J, Lawlor D A, Fairley L, Bhopal R, Cameron N, Mckinney P A, Sattar N, Wright J (2013). UK-born Pakistani-origin infants are relatively more adipose than white British infants: findings from 8704 mother-offspring pairs in the Born-in-Bradford prospective birth cohort. J Epidemiol Community Health 67(7): 544-551. or

5. Bansal N, Ayoola O O, Gemmell I, Vyas A, Koudsi A, Oldroyd J, Clayton P E, Cruickshank J K

(2008). Effects of early growth on blood pressure of infants of British European and South Asian origin at one year of age: the Manchester children's growth and vascular health study. J Hypertens 26(3): 412-418.

West et al, (2013): added.

Bansal, et al (2008) : added

Please see revised manuscript

6. Why is maternal age not known or included across the population if the under 16s are excluded? Surely this is routinely collected item This was originally due to Caldecott issues.

The raw data extracted included maternal age. However, the method to convert the age data from CMIS database to age bands (in SPSS) was not known about by the Midwife or principal researcher (RG). The data conversion method has since been learnt and the data extraction is now being re-run to include transformed age (to bands), for future publications that uses this raw data from Luton.

(20&under; 21-25; 26-30; 31-35; 36-40; 41& above)

7. the authors do not describe the method of analysis adequately used for table 3 and need to Original table 3 is deleted.

Statistics and Results section completely rewritten, with care to describe methods more carefully.

Please see revised manuscript

8. the amount missing case data by ethnic group should be reported Missing cases data reported (table 2 & 3). Please see revised manuscript

9. it is not appropriate to talk about straight percentages as in the percentage of very low birthweight infants as this is influenced by the number of women included in each ethnic group, it is more informative to discuss proportions with outcomes by group

Percentages removed.

Please see revised manuscript

major issues-

10. I understand that if routine NHS data is used for audit purposes to improve service provision NRES approval is not required, if these analyses were undertaken for this reason this needs to be explicit.

However if data are used for research purposes only, NRES proportional review is required. Also as these participants are NHS patients it is immaterial that the researchers have university approval, because for use of NHS obtained data for research NRES approval is required  
Routinely collected secondary data was used for the purpose of monitoring service improvements and providing baseline data. Ethic approval was therefore not required from NRES but was obtained from the University of Bedfordshire Research Ethics Committee (March 2014). Scrutiny from the hospitals Information Governance Manager ensured adherence to patient confidentiality and data protection before de-identified routinely collected data was provided.

Please see revised manuscript

11. the results on birthweight in table 1 are not helpful when non-viable and preterm births are included without adjustment, they will skew the mean results and the authors point out that there are difference between the subgroups in terms of rate of viable, preterm and term births

Adjusted and unadjusted mean birthweights provided (table 2)

Please see revised manuscript

12. the sentence: gestation and maternal height were controlled as know confounders to birthweight doesn't make sense,

13. unadjusted and adjusted regression analysis using all relevant and available confounders including smoking BMI, hypertension diabetes etc (which were collected) should be undertaken for the examination of these outcomes in a large dataset such as this, and I think should be presented as table 2 following table (1) which should include the cohort characteristics and all the main confounding variables for each group. I'm not sure what the analysis in table 3 adds this needs to be explained

Results have been re-written.

Hierarchical regression was conducted to control for confounding variables (maternal smoking, diabetes, hypertension, gestation age and maternal height).

Table 1 revised to show cohort characteristics as suggested.

Table 2 shows adjusted & unadjusted mean birth weights

Table 3 (as in original manuscript) is removed.

Tessa Pollard

Durham University, UK

The authors compare birth weight and length of gestation between infants born in Luton to mothers of white British, Indian, Pakistani and Bangladeshi origin. They use a valuable dataset that includes a large number of births to mothers from the three largest South Asian groups in the UK.

The absence of information on maternal age is unfortunate.

Greater clarity and precision in presentation and analysis would be useful, and my suggestions are listed below

Raw data is being re-extracted and then converted to obtain missing maternal age for future publications: see comment above.

Results section re-written.

1. The results section of the abstract could be improved by the inclusion of statistics to support all the statements made.

2. The findings on birthweight should feature more prominently.

Results section of abstract and main body of manuscript has been completely revised. The adjusted mean birthweight for white British mothers was found to be 3326.73g, Indian mothers 3042.1g, Pakistani mothers 3138.27g, and Bangladeshi mothers 3074.09g.

P4 lines3-4 The data from Margetts et al (2002) given here as being from the different ethnic groups are actually limited to data for children born to mothers themselves born in India, Pakistan and Bangladesh.

Margetts et al also had data from mothers of Indian, Pakistani and Bangladeshi ethnicity who were born in the UK. The meaning of 'between generations' in this sentence is unclear.

Text revised.

'between generations' deleted.

Margetts and colleagues (Margetts et al., 2002) identified differences in mean birthweights of infants among Indian (3077g), Bangladeshi (3161g) and Pakistani (3235g) (regardless of maternal place of birth).

P4 line 12 – citation needed for Leon and Moser Added.

P 4 second paragraph. The use of 'correspondingly', 'moreover' and 'similarly' in this paragraph is confusing. It is not clear what is referred to here.

Deleted and reworded.

The methods section should state whether all the data included in the paper come from births in hospital. If this is the case, the discussion would need to note this as a limitation of the study.

The CMiS database is a clinical information system used in some maternity departments in the UK to record all births (i.e. hospital and home).

6. The statistical approach taken in the paper is unusual and sometimes difficult to follow (further comments below).

Revised.

7. P 6 line 3. It would be useful for the authors to explain how and why gestation and maternal height were controlled in their analyses, and for them to explain why they were controlled and other variables known to influence birth weight, as listed by the authors on p3, were not. (Variables known to affect birth weight and not listed by the authors include parity and infant's gender). The authors should consider what controlling for these variables means for their analysis. For example, maternal height varies considerably between the ethnic groups and may help account for differences in birth weight. If maternal height is controlled for in all analyses then meaningful differences between the groups may be obscured, as may the potential role of maternal height in explaining group differences. See Kelly et al (2009) for more on this.

The same as reviewer 1 comments above: section 11-13

Results have been re-written.

Hierarchical regression was conducted to control for confounding variables (maternal smoking, diabetes, hypertension, gestation age and maternal height).

Table 1 revised to show cohort characteristics as suggested.

Table 2 & 3 shows adjusted & unadjusted mean birth weights

Table 3 (as in original manuscript) is removed.

A table describing the characteristics of the different groups should be included. (as above)

Table 1 revised to include characteristics.

Table 1. It would be useful to report 95% confidence intervals here. 95% confidence intervals added.

Table 2. It is unclear to me how the odds ratios presented here were calculated. Please state the reference group. Reference group added in text and on table.

(white British as seen in

(Datta-nemdharry et al., 2012)

Datta-nemdharry, Preeti, Dattani, Nirupa and Macfarlane, Alison J. (2012) 'Birth outcomes for African and Caribbean babies in England and Wales: retrospective analysis of routinely collected data.'. BMJ open. 2 (3), [online].

Table 3. It was unclear to me what question these analyses were designed to answer. The cell counts are very low or zero in many cases, which also calls into question the utility of this approach.

Original Table 3 deleted.

The results section is sometimes confusing to read. One issue is that non-essential information is sometimes included, sometimes repeated from tables. For example, we don't need to be told in the text that Pakistani mothers had the earliest and latest deliveries as that information isn't central to the results and is provided in a table (p6)

Results rewritten.

p<000.1 is a typo Removed

As in the results section, some streamlining is required here (e.g. no need to report the fact that white British mothers delivered the highest number of infants that were classified as very low birth weight (p12, lines 16-18)).

Discussion revised, following revised results section.

P14, line 19. It is hard to see a justification in the data and analyses presented for the suggestion that South Asian infants may not have the same natural gestation period as seen in White British infants.

Revised text. One possible explanation is that these results do lend weight to the existing theory that Indian and Bangladeshi infants may have a shorter natural gestation period and that that seen in white British infants, however, more research is needed to determine whether indeed this is the case [18]

## VERSION 2 – REVIEW

<b>REVIEWER</b>	Tessa Pollard Durham University, UK
<b>REVIEW RETURNED</b>	25-Apr-2016

<b>GENERAL COMMENTS</b>	<p>This manuscript is greatly improved, with greater clarity throughout, but the presentation could usefully be improved further.</p> <p>General points</p> <p>The authors note that they now have access to data on maternal age. Given the potential importance of this variable for the analyses, the paper would be greatly enhanced by the inclusion of information on average maternal age in the four groups, and adjustment for maternal age in the main analyses. Other studies have suggested that there are likely to be differences in average maternal age in the different ethnic groups included here (e.g. Kelly et al 2009), raising the strong possibility that maternal age contributes to ethnic differences in birth weight.</p> <p>The interpretation offered here of the results of the analyses on pre-term delivery is misleading. The odds ratios reported are small and non-significant, but the authors make repeated reference to Indian mothers having a higher risk of pre-term delivery than Whites, including in the abstract. These findings require more careful and appropriate recording and discussion.</p>
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	<p>In many places &gt; is used in place of &lt;</p> <p>Abstract</p> <p>Information on variables adjusted in the analyses would be better presented before the adjusted means.</p> <p>Introduction</p> <p>P4 lines 5-8: Margetts et al's (2002) results are reported by mother's place of birth, not by mother's ethnicity. Thus the means reported here in the introduction (p4) are for the infants of mothers of Indian, Bangladeshi and Pakistani ethnicity who were born in those countries, and not for all mothers of those ethnicities (many of whom were born in the UK). Thus misreading of the data presented by Margetts et al also affects the discussion (p11).</p> <p>P4 line 34: it would be better to report the figures from 2012 in the past tense rather than the present tense.</p> <p>Methods</p> <p>P6 line 4: The phrase "Retrospective data used routinely collected data" needs revision.</p> <p>P6 lines 21-28: Given the new information later in this paragraph, the first sentence is no longer needed, although the references could usefully be included later in the paragraph.</p> <p>P 6 line 54: The sentence "Missing data was excluded" needs further information. Presumably what is meant here is that cases with missing data were excluded?</p> <p>P7 line 23: birthweight is the outcome variable, not the predictor variable as stated here.</p> <p>P7 lines 28-30: the construction of the categories for age at gestation has already been explained (on p6) and does not need to be repeated.</p> <p>P7 regarding ethics: is the relevant point here that these were routinely collected data that were provided in a non-identifiable form to the research team?</p> <p>Results</p> <p>Table 1: Please give percentages of smokers, mothers with diabetes etc within each ethnic group.</p> <p>P8 lines 39: Presumably 'differences' should be 'associations' here</p> <p>The purpose of the analyses presented in Tables 3 and 4 is not explained and my reading is that this information is not referred to later in the paper. I suggest these analyses are deleted. Alternatively, they need to be justified and interpreted.</p> <p>P9: lines 44-50. The meaning of these sentences is unclear. They appear to be slightly different ways of reporting the same results. The findings from all the post-hoc pairwise analyses conducted</p>
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	<p>needs to be more clearly presented.</p> <p>P9 line 52: Information on tests for assumptions should appear earlier.</p> <p>Discussion</p> <p>P11 lines 25-27: Not clear what is being suggested here.</p> <p>P11 line 46: what is meant by the reference to maternal ethnicity here? The results by maternal ethnicity are discussed in the first paragraph of the discussion.</p> <p>P12 lines 8-12: if the data on maternal hypertension appear to be inadequate, this should be noted in the methods section and it would make sense to omit this variable from the analyses.</p> <p>P12 lines 5-12: It is confusing that the results on preterm delivery are included at the end of a paragraph dealing with the effect of confounders on birth weight.</p> <p>P12 lines 33-37: It is not clear how this suggestion arises from the results presented here.</p> <p>P13 lines 39-44: As noted above, no difference in the risk of pre-term delivery is observed in the paper, so it does not make sense to suggest that there may be a difference in "natural gestation period".</p> <p>P21 line 16-18: the concern here is that there is likely to have been variation in maternal age between the different ethnic groups.</p> <p>References</p> <p>Kelly et al (2009) Why does birthweight vary among ethnic groups in the UK? Findings from the Millennium Cohort Study. J Public Health 31: 131-137</p> <p>Margetts et al (2002) Persistence of lower birth weight in second generation South Asian babies born in the United Kingdom. JECH 56: 684-687</p>
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## VERSION 2 – AUTHOR RESPONSE

Following careful further revision after Tessa Pollards (reviewer) most helpful comments, the manuscript now includes maternal age and the analysis was revised accordingly.

This study used retrospective routinely collected data over six years and found Indian mothers had the lightest adjusted mean birthweight, while Bangladeshi slightly heavier, Pakistani and white British heavier incrementally heavier. This trend was the same in non-adjusted and adjusted mean birthweight. There was no difference found in earlier delivery between maternal ethnicities, although the results for Indian infants are shown, as they are near to significance. In addition, maternal age is now included in this study and demonstrates significant trends in maternal age between maternal ethnicities; showing white British mothers <20 years and >35 years deliver a higher proportion of infants, compared with Indian, Pakistani or Bangladeshi mothers.

The results from this paper highlight important differences in mean birth weights and pre-term delivery of infants born to Indian, Pakistani and Bangladeshi women. To the best of our knowledge this is one

of the few papers to examine differences between birthweight and gestational age in infants born to Indian, Pakistani and Bangladeshi mothers, consequently the findings add to a sparse but emerging evidence base.

This manuscript has been formatted according to the BMJ Open guidelines. If however, we have made any mistakes these will be amended. I can confirm that this review has not been published or submitted elsewhere, and that all contributing authors agree to the submission to BMJ Open.

### VERSION 3 – REVIEW

<b>REVIEWER</b>	Tessa Pollard Durham University, UK
<b>REVIEW RETURNED</b>	20-Jun-2016

<b>GENERAL COMMENTS</b>	<p>This paper is again improved. In particular, the adjustment for maternal age is a valuable addition. Unfortunately, however, there are a number of problems with the revised paper.</p> <p>The new analyses of the association between ethnicity and pre-term birth do not adjust for likely confounders. There are many confounders (as for birth weight) associated with pre-term birth that should be adjusted for here, as in Patel et al's (2003) analyses for example.</p> <p>The authors have added descriptive information to Table 1 on some of the possible confounding variables included in their models. However, this information is incomplete. Descriptives for all the variables included in the models should be included, by ethnicity, and it would make more sense to include the information on maternal age in this table, rather than providing it in a separate table. Similarly, the authors should either test for differences between ethnic groups in all the potential confounders, or none, not just maternal age as in the current manuscript. Table 3 is redundant and should be deleted.</p> <p>The list of confounding variables is repeated in several places (which is unnecessary) and is not always consistent e.g. in some places 'singleton' is included in the list, but the section on statistical analysis notes that only singleton infants were included in the analyses, maternal age and BMI are omitted from the list given in lines 21-24 on p7. Similarly, the sample size is listed in several places, but varies for reasons that are hard to understand.</p> <p>The text in the results section needs streamlining to avoid repetition. For example, the final paragraph on p11 could be deleted.</p> <p>The discussion needs to be more clearly written. Some points are mentioned without their relevance being clear.</p> <p>The abstract and main text both refer to 'differences between maternal ethnicity and preterm delivery'. 'Differences' should be 'associations'.</p> <p>P6 lines 36-38 Need to be clear whether these 12 cases were omitted from the analysis or the variable 'maternal hypertension'?</p> <p>There are still places where &gt; is used in place of &lt; e.g. p10 line 40.</p>
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### VERSION 3 – AUTHOR RESPONSE

Reviewer comment	Revision	Author comment
<b>Tessa Pollard</b>		
This paper is again improved. In particular, the adjustment for maternal age is a valuable addition. Unfortunately, however, there are a number of problems with the revised paper.		
<p>The new analyses of the association between ethnicity and pre-term birth do not adjust for likely confounders.</p> <p>There are many confounders (as for birth weight) associated with pre-term birth that should be adjusted for here, as in Patel et al's (2003) analyses for example.</p>	Variable re-coded to account for primipara only. The CMiS data set has no variables of SES measures, so this is now noted as a limitation.	
<p>The authors have added descriptive information to Table 1 on some of the possible confounding variables included in their models. However, this information is incomplete.</p> <p>Descriptive for all the variables included in the models should be included, by ethnicity, and it would make more sense to include the information on maternal age in this table, rather than providing it in a separate table.</p> <p>Similarly, the authors should either test for differences between ethnic groups in all the potential confounders, or none, not just maternal age as in the</p>	<p>Descriptive table revised.</p> <p>Maternal age deleted.</p>	

current manuscript.  Table 3 is redundant and should be deleted.	  Table 3 deleted	
<p>The list of confounding variables is repeated in several places (which is unnecessary) and is not always consistent e.g. in some places</p> <p>'singleton' is included in the list, but the section on statistical analysis notes that only singleton infants were included in the analyses, maternal age and BMI are omitted from the list given in lines 21-24 on p7.</p> <p>Similarly, the sample size is listed in several places, but varies for reasons that are hard to understand.</p> <p>The text in the results section needs streamlining to avoid repetition.</p> <p>For example, the final paragraph on p11 could be deleted.</p>	<p>Confounders: revised.</p> <p>maternal age, smoking status, diabetes, gestation age at delivery, parity and maternal height and BMI</p> <p>'singleton' carefully used in method description and results summary</p> <p>Sample size: N= 14871 – figures checked and manuscript amended.</p> <p>Results revised.</p>	Analysis checked and Text revised.
<p>The discussion needs to be more clearly written.</p> <p>Some points are mentioned without their relevance being clear.</p>	Discussion section rewritten.	Revised.
The abstract and main text both		

refer to 'differences between maternal ethnicity and preterm delivery'. 'Differences' should be 'associations'.	Revised.	Document checked and text revised.
P6 lines 36-38 Need to be clear whether these 12 cases were omitted from the analysis or the variable 'maternal hypertension'?	However, the CMiS data (for white British, Indian, Pakistani and Bangladeshi records) only had 12 data entries recorded for maternal hypertension; the reasons for the lack of data is unknown and therefore to avoid error the variable was excluded from this analysis.	revised
There are still places where > is used in place of < e.g. p10 line 40.	amended	Documented double checked and amended accordingly.

#### VERSION 4 – REVIEW

<b>REVIEWER</b>	Mohammad Reza Baneshi Modeling in Health Research Center Institute for Futures Studies in Health Kerman University of Medical Sciences Kerman IRAN
<b>REVIEW RETURNED</b>	03-May-2017

<b>GENERAL COMMENTS</b>	<p>I was asked to review the statistical analysis and results. I have no serious points. There are minor concerns as follows:</p> <ol style="list-style-type: none"> <li>1. In Table 1, I prefer to see P-values. Please compare confounders across 4 groups.</li> <li>2. In the results section, you mentioned smoking affects birthweight... No data about means in smokers and non-smokers are provided. My preference is to report a regression table. Also please report exact P-values, no matter whether the variable is significant or not.</li> <li>3. Although some of the differences are significant they are not clinically useful. For example difference between Indian and Pakistani infants is only 57g. This small difference reaches significance level due to large sample size and high power. These</li> </ol>
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	<p>results should be interpreted carefully.</p> <p>4. In Table 3, there is no benefit to report adjusted residuals. They provide no useful data to readers. Again here I prefer to see results in a regression fashion. I prefer to know results in terms of odds ratio. For example, Indians are xx times more likely to have &lt;37 weeks delivery than British...</p>
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#### VERSION 4 – AUTHOR RESPONSE

Reviewer comments	Revision	Author comment
<p>Please revise the first two bullet points of the 'strengths and limitations' section on page 3. This section should contain up to five short bullet points, no longer than one sentence each, that relate specifically to the methods/ design of the study reported (see: <a href="http://bmjopen.bmj.com/site/about/guidelines.xhtml#articletypes">http://bmjopen.bmj.com/site/about/guidelines.xhtml#articletypes</a>). It should not be a summary of your study and its findings.</p>	<p>This study uses retrospective routinely collected data over six years providing a large sample size, (N=14,871), providing more generalisable results.</p> <p>This paper adds to the sparse existing evidence which examines heterogeneity in birthweight and gestation age at delivery between women from South Asia in the UK.</p>	
<p>In Table 1,</p> <p>I prefer to see P-values.</p> <p>Please compare confounders across 4 groups.</p>	<p>Revised as requested.</p> <p>Actual <i>p</i> values inserted.</p>	<p>Table revised – ANOVAs conducted to determine any differences between each confounder variable, ethnicity and birthweight.</p>
<p>In the results section, you mentioned smoking affects birthweight</p> <p>No data about means in smokers and non-smokers are provided.</p> <p>My preference is to report a</p>	<p>Regression conducted.</p> <p>Regression table added as</p>	<p>Smoking is one of several confounders in this study, the focus was on ethnicity and LBW, however, as requested, we have shown the contribution of smoking to LBW.</p>

regression table. Also please report exact P-values, no matter whether the variable is significant or not.	requested.	
Although some of the differences are significant they are not clinically useful. For example difference between Indian and Pakistani infants is only 57g. This small difference reaches significance level due to large sample size and high power. These results should be interpreted carefully.	The results showed that there was a difference of 307.65g between WB and Bangladeshi infants. This is consistent with previous results, showing that South Asian infants are 230-250 g lighter [14–16]. Moreover, a small difference ranging from 57.63-62.7 g was also identified between Indian, Bangladeshi and Pakistani infants, although this marginal difference is likely not be clinically useful.	Discussion text revised
<p>In Table 3, there is no benefit to report adjusted residuals. They provide no useful data to readers.</p> <p>Again here I prefer to see results in a regression fashion.</p> <p>I prefer to know results in terms of odds ratio. For example, Indians are xx times more likely to have &lt;37 weeks delivery than British.</p>	<p>ASR table deleted.</p> <p>OR for LBW classified by 3 tiers added</p>	.